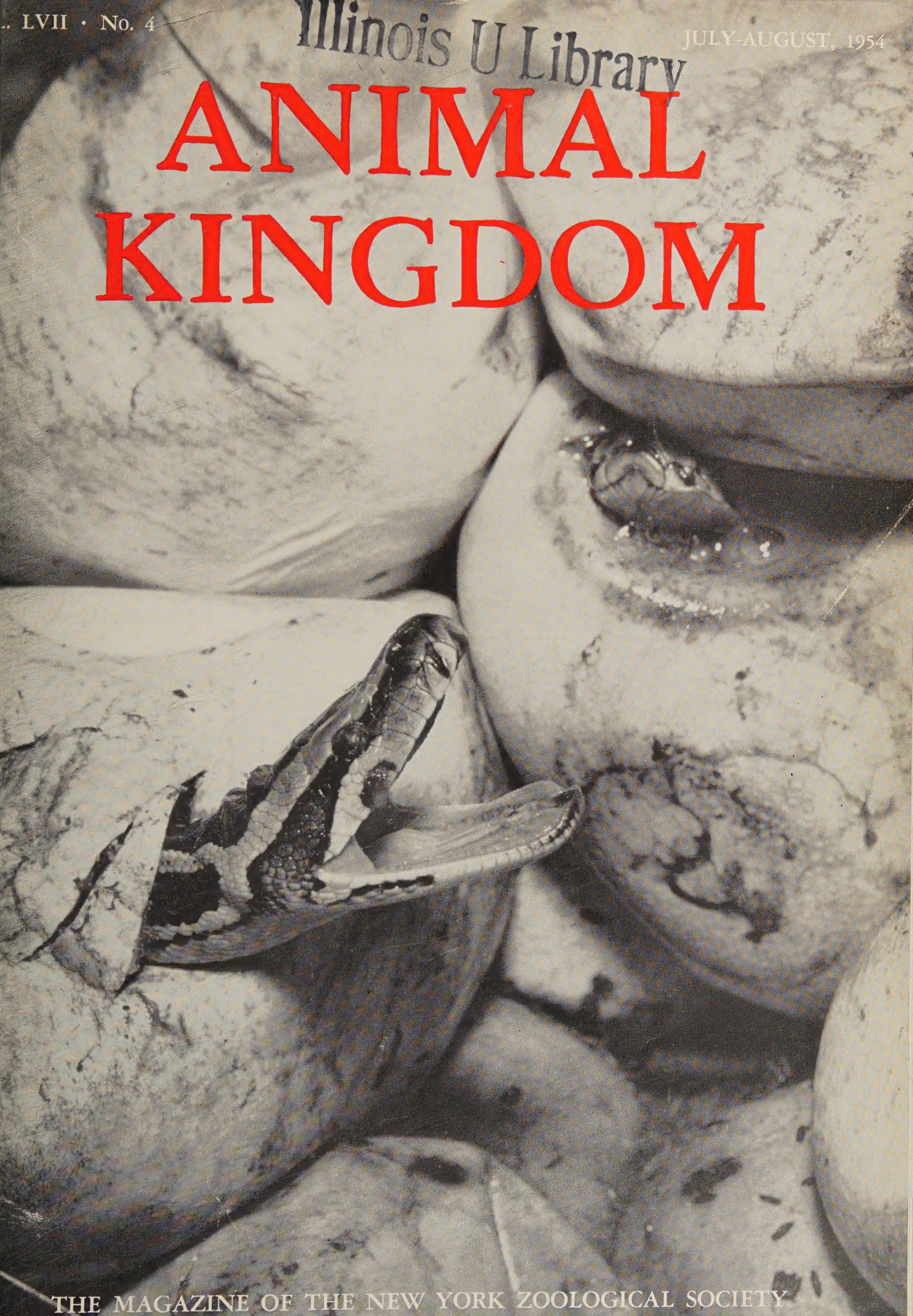
.. LVII · No. 4

Illinois U Library

JULY-AUGUST, 1954

ANIMAL KINGDOM



THE MAGAZINE OF THE NEW YORK ZOOLOGICAL SOCIETY

NEW YORK ZOOLOGICAL SOCIETY

General Offices: 30 East 40th Street, New York 16, N. Y.

PRESIDENT
Fairfield Osborn

VICE-PRESIDENTS
Alfred Ely
Laurance S. Rockefeller
Donald T. Carlisle

SECRETARY
Harold J. O'Connell

TREASURER
David H. McAlpin

ASSISTANT TREASURER
Percy Chubb, 2nd

EXECUTIVE COMMITTEE
Laurance S. Rockefeller
Chairman
Cornelius R. Agnew
John Elliott
Alfred Ely
Robert G. Goelet
De Forest Grant
Warren Kinney
David H. McAlpin
Robert Moses
Harold J. O'Connell
Fairfield Osborn

BOARD OF TRUSTEES

Class of 1955
George F. Baker, Jr.
F. Trubee Davison
John Elliott
Robert I. Gannon
Peter Grimm
Fairfield Osborn
Eben Pyne
Laurance S. Rockefeller
Archibald Roosevelt
John M. Schiff
Edwin S. Webster

Class of 1956
Archibald S. Alexander
Harry Payne Bingham
A. Raymond Dochez
Robert G. Goelet
De Forest Grant
Eugene Holman
Warren Kinney
William De Forest Manice
Harold J. O'Connell
Landon K. Thorne
J. Watson Webb

Class of 1957
Cornelius R. Agnew
Percy Chubb, 2nd
C. Suydam Cutting
Alfred Ely
Marshall Field
Childs Frick
Henry Clay Frick
Archer M. Huntington
David H. McAlpin
John H. Phipps

Ex-Officio, The City of New York
The Mayor, Hon. Robert F. Wagner
Commissioner of Parks, Hon. Robert Moses

STAFF: Zoological Park and Aquarium

John Tee-Van . . . . . *Director*
Leonard J. Goss . . . . . *Assistant Director*

ZOOLOGICAL PARK

Robert M. McClung . . *Curator, Mammals & Birds*
Grace Davall . . *Assistant Curator, Mammals & Birds*
James A. Oliver . . . . . *Curator, Reptiles*
Leonard J. Goss . . . . . *Veterinarian*
Charles P. Gandal . . . . . *Assistant Veterinarian*
Gordon Cuyler . . . . . *Administrative Assistant*
Herbert J. Knobloch . . *Assistant Curator, Education*
John V. Quaranta *Research Associate, Animal Behavior*
Quentin Melling Schubert . . . . *Superintendent, Construction and Maintenance*
Edward Kearney . . . . *Manager, Facilities Dept.*

Lee S. Crandall . . . . *General Curator Emeritus*
William Beebe . . . . . *Honorary Curator, Birds*

AQUARIUM

Christopher W. Coates . . . . *Curator & Aquarist*
James W. Atz . . . . . *Assistant Curator*
Ross F. Nigrelli . . . . . *Pathologist*
Myron Gordon . . . . . *Geneticist*
C. M. Breder, Jr. . *Research Associate in Ichthyology*
Homer W. Smith . . *Research Associate in Physiology*

GENERAL

Herbert F. Schiemann . . . . . *Comptroller*
William Bridges . . . *Editor & Curator, Publications*
Dorothy Reville . . . . . *Editorial Assistant*
Sam Dunton . . . . . *Photographer*

DEPARTMENT OF TROPICAL RESEARCH

William Beebe . . . . . *Director Emeritus*
Jocelyn Crane . . . . . *Assistant Director*
Henry Fleming . . . . . *Entomologist*
Rosemary Kenedy . . . . . *Field Assistant*

Associates
William K. Gregory
John Tee-Van

SCIENTIFIC ADVISORY COUNCIL

A. Ramond Dochez
Alfred E. Emerson
W. A. Hagan
Caryl P. Haskins
K. S. Lashley
John S. Nicholas

AFFILIATES

C. R. Carpenter, *Co-ordinator*
Animal Behavior Research Programs
L. Floyd Clarke, *Curator*
Jackson Hole Research Station

CONSERVATION FOUNDATION

Stephen W. Bergen
George E. Brewer, Jr.
Donald T. Carlisle
John C. Gibbs
Samuel H. Ordway, Jr.
Hugh J. Ross
A. William Smith
Robert G. Snider
Peter M. Stern

ANIMAL KINGDOM

Bulletin of the New York Zoological Society

In This Issue

Python Eggs Hatching
Sam Dunton Cover

The Most Beautiful Reptile House in the World
James A. Oliver 98

The Unpredictable Platypuses
Robert M. McClung 110

Zoo News in Pictures
Photos by Sam Dunton 112

The Nest and Egg of the Black-winged Bellbird
William Beebe 115

Four Babies from Alaska
Robert M. McClung 120

News from the Conservation Foundation 124

Behind the Scenes 125

Vol. LVII AUGUST 1954 **No. 4**

Issued bi-monthly at the Offices of the New York Zoological Society, 30 East Fortieth Street, New York 16, N. Y. Editorial and Subscription Offices, Zoological Park, Bronx Park, New York 60, N. Y. Title registered with United States Patent Office • Subscription, $3.50 a year; single copy, 60 cents. Same rates for all foreign countries and Canada. All pictures not otherwise credited are from the photographic collection of the New York Zoological Society.

Odyssey of Money

This is the second of a series of brief editorials to illustrate the fruitful ways in which money given to our Society can be used.

BY FAR the greater part of our money is used right here at home. The Zoo and the new Aquarium make imperative demands for funds that need to be spent not only for physical improvement but for the welfare of our employees, averaging more than 300 in number. However, our Society was also chartered to serve other purposes, involving the advancement of zoology and protection of the wild animal life of the world.

Three years ago we woke up to the fact that many European zoologists were in a straight-jacket as far as money was concerned and it behooved us, as a fortunate American institution, to give them a helping hand. Thus we established our own Point IV Program – small but potent. The results proved infinitely worthwhile, even the smallest grants drawing heartfelt appreciation from European scientists. For instance, we sent merely $70. to a zoologist in the Max Planck Institute in Westfalen, Germany, to enable him to buy some publications he urgently needed for his studies of animal behavior. He sent us the following acknowledgment: "The generosity with which you further our investigation plans rouses in me an ever and again deep feeling of shame, that we – at least for the time being – are not able to offer you things likewise . . . Words are too less for my heaps of hearty gratefulness!"

Another scientist in the Royal Institute of Natural Science, Brussels, was engaged in studies of the nightly migrations of birds and we sent him $150. to buy batteries and lights for his observations. He wrote: "This help allows me to execute a long cherished project."

We sent $120. to another scientist in the Zoological Institute, University of Vienna, who was engaged in some research on aquatic life. He later wrote us: "Your Program is a wonderful deed of real international thinking in science matters, which I truly admire."

The program was made possible only because of the existence of funds representing an accumulation of gifts and legacies that had been made to the Society from time to time in the past. We maintained this program for two successive years, aiding the work of forty-eight individuals attached to thirty-eight different scientific institutions in thirteen countries, at a cost of less than ten thousand dollars. With considerable regret we have found it necessary to terminate the program this year because of more immediate demands upon our finances. But it did much good, advancing the cause of zoology and creating new bonds between our institution and scientific co-workers in countries abroad.

Fairfield Osborn

We Dedicate—

"THE MOST BEAUTIFUL REPTILE HOUSE IN THE WORLD"

By JAMES A. OLIVER

AT 3 P.M. on the 8th of November, 1899, Professor Henry Fairfield Osborn delivered the address of dedication at the opening of the New York Zoological Park. Only two permanent buildings were completed on that date; one of them was the Reptile House. As befits the dedication of an institution, Professor Osborn spoke in broad terms. The Zoological Park, he remarked, was established for the purpose of bringing the wonders of natural science "within the reach of thousands and millions" of all walks of life. He spoke prophetically, for in the seven weeks between November 8 and the end of 1899, ninety thousand persons journeyed to the distant Bronx to see the new Zoological Park.

A little more than half a century later and again a few minutes after 3 o'clock, on the 26th of May, 1954, Fairfield Osborn as President of the Zoological Society dedicated anew the Reptile House – rebuilt from roof to basement. In his brief talk he amplified the operational philosophy expressed on the earlier date by his distinguished father. "This occasion in honor of reptiles marks just another step forward in our determination to make the Bronx Zoo the most beautiful and the most interesting place of its kind in the world," he said.

And, as an indication of the continued and increased interest of the "thousands and millions," 116,164 persons visited the Zoological Park in the single week-end – two days – following this second opening of the Reptile House.

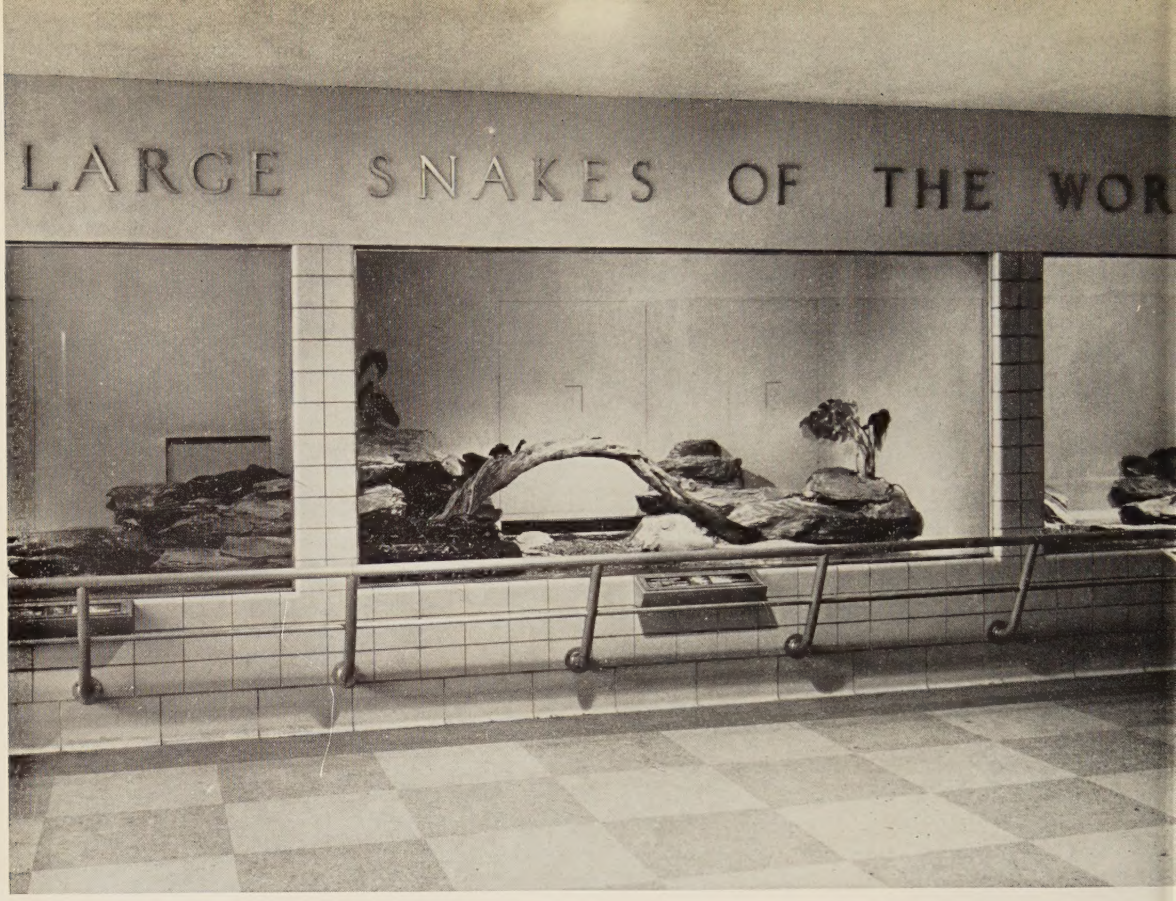
The late Dr. Raymond L. Ditmars, the Society's renowned and first Curator of Reptiles, was largely responsible for the design and equipment of the original building. In its beginning and for many years thereafter it represented the most advanced techniques of the times. In those early years Dr. William T. Hornaday wrote enthusiastically: "There seems to be no question regarding either the attractiveness of the Reptile House, or its fitness to meet all the requirements of its living contents. It is only the echo of public sentiment to assert that it is a success. On all Sundays it is densely crowded with visitors; but were it five times its present size, standing room would be at just as high a premium as now."

Blue-green tile, tropical plants and a lavish use of color in cage backgrounds create an impression of beauty that will, we hope, lessen the dislike some people have of reptile life.

The same words are applicable to the remodelled building, except that the first sentence of Dr. Hornaday's comment seems too pallid for our present Reptile House.

With the passage of time, the attrition inevitably associated with great crowds, the considerable increase in our knowledge of reptile biology and the improvement and development of technical skill in architectural engineering, the original Reptile House became antiquated and inadequate. Specimens could no longer be exhibited in attractive or even adequate physical settings, and so, after long consideration and careful planning, reconstruction was started early in 1952 — literally from the roof down. Exhibition was maintained, although with difficulty, while a new copper roof was being put in place, but when the roofers departed the building was definitely closed and the interior was cleared from wall to wall. Within a few weeks only the strong steel girders of the roof and the sturdy outer walls remained of the original building. Within this shell we have built a strikingly modern exhibit.

The first requirement was simple in concept: we wanted a building in which a large and varied collection of amphibians and reptiles could be properly and comfortably housed in compartments that simulated their different physical requirements. This meant living areas of many



types. The old idea that all reptiles thrive at one constant temperature — just as long as the temperature is high — has been shown to be wrong. A modern Reptile House must provide a variety of temperature conditions not only from cage to cage, but even within the individual compartments. This latter provision permits each animal to select the degree of warmth most suitable for its varying activities. Temperatures in our new cages can be controlled individually or in units, and they vary from front to back in each cage, the rear being cooler than the front. Radiant heat pipes are embedded in the front floor and thus by making this area warmer than the back, the specimens are induced to remain more constantly up front where they can be clearly seen by the public. Instead of a single temperature throughout the building, we now have compartments in which the base temperatures vary from 65° F. to 90° F. No single cage has a temperature range as wide as that, but each one may grade up or down from its own base temperature by as much as 5° F. — a range of considerable magnitude where reptiles are concerned.

The big pythons and anacondas, some of them 20 feet long, catch the visitor's eye when he enters the Reptile House. The largest of these compartments is 11 feet long by 6 feet deep.

Light conditions also are varied from spot to spot and the large enclosures are provided with ultraviolet or infrared bulbs. All large cages have individually regulated mechanical ventilation systems. The water piped to all pools, big or little, is thermostatically controlled and mixed so that only warm water is brought in contact with the reptiles. Several enclosures have fog nozzles to maintain high humidity, for we know that some snakes that come from wet forest areas require considerable moisture in their environment. Otherwise they have difficulty shedding their skins and become sickly.

For very nervous snakes one-way-glass is provided, so that the visitor can see into the cage but the snakes cannot see the visitors — they see only a reflection of themselves as in a mirror. The value of these installations is shown by the reaction of two large Eastern Diamondback Rattle-

Looking down the corridor toward the west, past the large snakes of the world, the Alligator Swamp inevitably attracts the eye. Exhibits of local snakes are set in the wall at the left.

snakes. This species appears to be quite nervous and is difficult to keep in captivity. In exhibition cages faced with ordinary glass, rattlesnakes usually rest in a coil at the rear, as far away from the public as possible, and their heads are directed toward the front of the cage where they perceive the motion of passers-by. In their one-way-glass cage our two Diamondbacks are usually found to be at the very front, in plain view of visitors, and their heads are likely to be directed toward the rear door. Only there, and then only at infrequent intervals, are they alarmed by any motion, as when a keeper walks through the passageway and his shadow falls on the ventilation grill. The nervous tension of these snakes is markedly decreased.

The simulation of natural settings came first, but eye-compelling attractiveness was only technically second in our planning. Indeed, it was considered so important that President Osborn wisely suggested calling in professional consultants to work out the details of decoration, color and planting.

As a result of this specialized assistance, there is a bold continuity of design from the flowing curved wall of the Alligator Swamp through the corridors leading back to the Nile Crocodile and Galapagos Tortoise exhibits at the opposite end of the building. Colored tile, subtly varying cage background colors and the intricate forms of weathered driftwood mark differences yet maintain the feeling of unity. Color — a great deal of it — is certainly first impression formed by a visitor; it is heightened in the Alligator Swamp by two well-behaved Macaws perched on either side of the central pool.

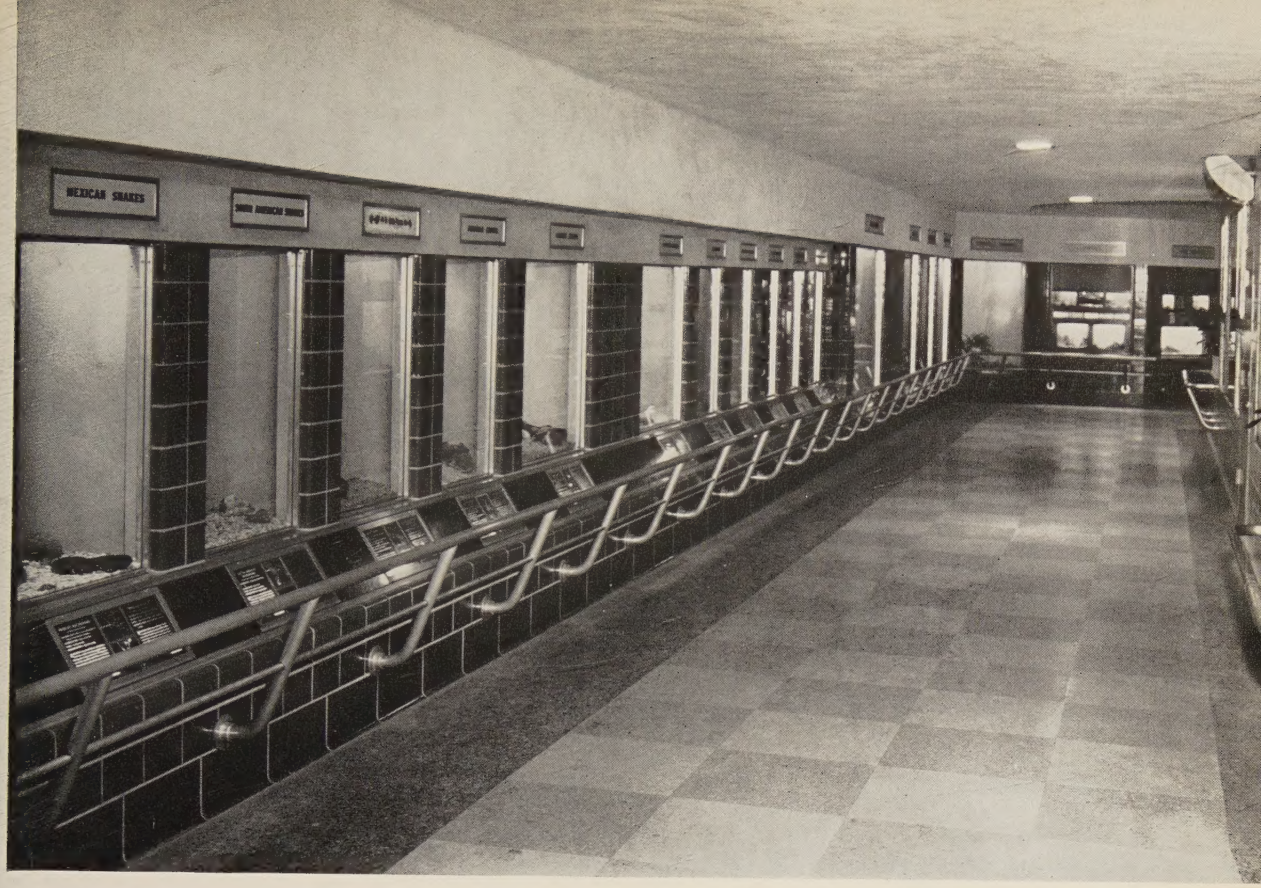
Since this building will undoubtedly be the first introduction to reptiles that millions of children will have through the years, we were determined to make it as pleasant as possible. Music, it seemed, would add to the effect, so symphonic music now gives a muted background of sound to the public space.

Natural sunlight, broken and diffused by a series of bamboo curtains, floods the Alligator Swamp in the afternoon. There is a deep pool for the 'gators in the foreground of the Swamp.

The educational aspects of animal exhibition — the business of telling people the interesting and important things about animal life — have always dominated exhibition planning in the New York Zoological Park. Here we had a prime opportunity to organize certain exhibits around a single theme and to give information about amphibians and reptiles in easily-understood terms. These displays combine zoological exhibition with museum techniques and utilize living specimens, large chart diagrams, mounted eggs and skulls. Bulletin board types of exhibits were slipped into space that could not be used otherwise. These give information on such things as relationships and history of amphibians and reptiles, tooth modifications and the classification of venomous reptiles, maximum size of reptiles and the care of pet turtles. Transparent labels have been used for the major series of cages and they give the common and scientific names, a map of known distribution and brief information about maximum size, food, reproduction and the pertinent facts of behavior or natural history. Where reptiles of different species occupy the same compartment, the labels give the markings by which they can be distinguished.

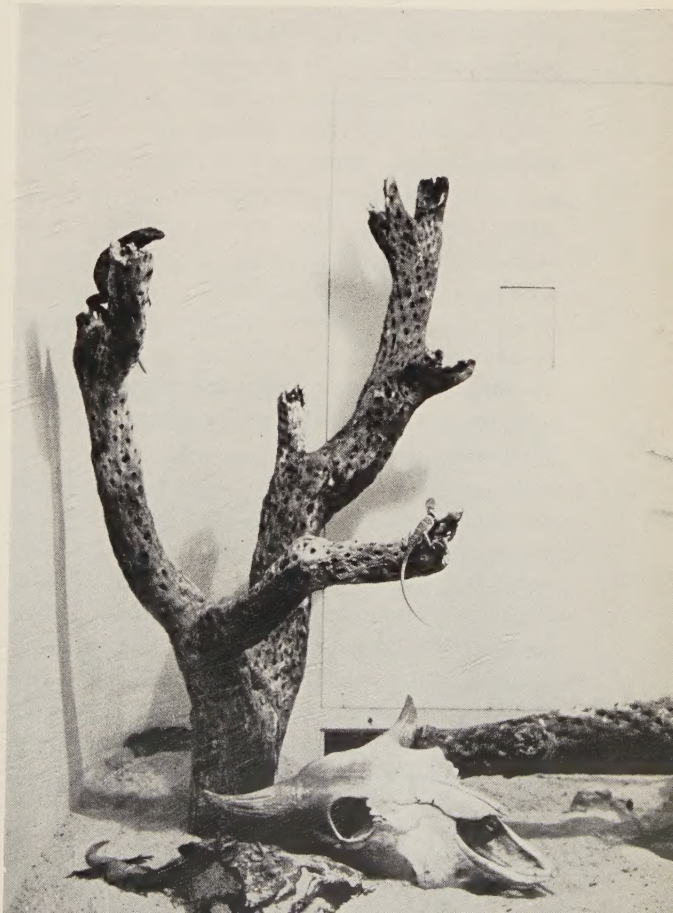
There is, consequently, a wide variety of educational fare; it is "cafeteria style," and it permits the visitor to take so much as he desires, whether it be a mere identification or a somewhat complex exposition of reptile history from the ancient past to the present.

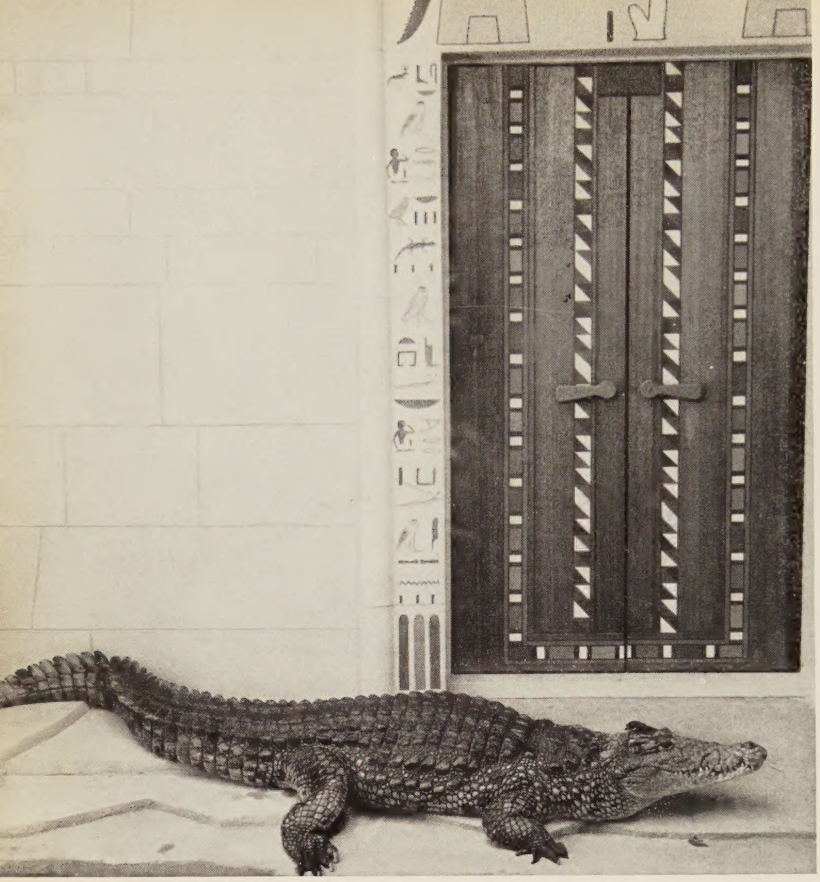
A perplexing problem in working out the overall design of the building was that of space. More room would be needed if we were to have a large and diversified exhibition worthy of the decor. In order to increase the number of cages and enlarge the visitor area, virtually all the main floor was given up to exhibition; only the necessary rear servicing passageways were subtracted. This meant extending exhibits into the east end of the building, formerly employed only for storage, and incorporating the "conservatory" in the west



ABOVE — Each compartment varies in color of its background and in its planting, the latter suggesting the reptile's habitat. BELOW — A typical cage, for reptiles of the desert.

end in the Alligator Swamp. By these means, and by putting more exhibits on a double level, we have been able to add 33 compartments, making a total of 94 exhibition enclosures in the building. These additions include three new turtle and crocodile pens, three large aquarium tanks for turtles, five small compartments for frogs and 22 homes of varying sizes for lizards and snakes. Not apparent to the public but most important operationally, four shift cages were built alongside the enclosures of the more deadly and larger snakes, so that they can be confined in a small holding area on occasions when it is necessary for their keepers to enter their living quarters for cleaning or some other reason. And, too, when two voracious feeders are exhibited together, it is valuable to be able to lock one up while the other feeds; that way there is no dispute as to which gets the most.





Heat pipes just in front of the doorway cause the Nile Crocodile to spend much of its time there. The inscription around the door is an invocation of Sobek-Re, a god of the ancient Egyptians.

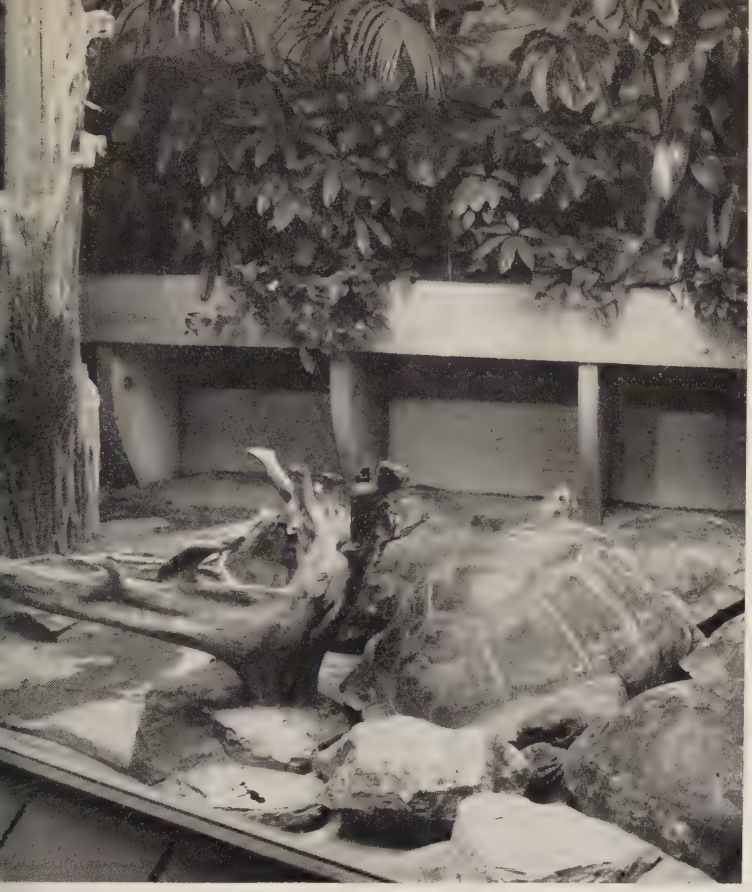
Safety — for the animals, the keepers and the public — has been very much to the fore in our planning. Admittedly there has been some compromise, but we think a justified one. To make all our turtles completely safe from the pellets, paper cups, popcorn and pocket combs tossed at them by *some* children, we would have had to confine them behind glass. The "Crocodilian Nursery," where young crocodilians are exhibited among twisted driftwood, was a similar problem. We felt that the hazards of exposure to a fraction of the public did not justify shutting the turtles and small crocodilians behind glass, and thus they are in the open.

In the snake cages, however, we went the limit in insuring safety. The exhibition glass fronts are set in metal frames, and so are the service doors at the rear. They are tight-fitting and non-warping, guaranteed to resist the effects of heat and moisture. Each door in the permanent cages is fitted with a small inspection opening that permits the keeper to observe the location of the snake *before* he opens the door. If there is the slightest doubt about the safety of opening, he has only to move the snake into the shift cage. To make assurance doubly sure, four of the cages designed to house the most dangerous snakes, such as Mambas, King Cobras, and the larger constrictors, have access doors in the ceiling. It is easily possible to work from above to direct a snake into the shift cage if it is reluctant to leave.

Lighting fixtures are all serviced from above instead of from the interior of the cage, for even though there may be a convenient shift cage, we want to avoid, as much as possible, the disturbance of the reptile that shifting inevitably involves. So, again, with the water supply; the pools in the large, permanent cages can be drained and filled without opening the door.

In the public space the guard rails are anchored in the wall that is flush with the front of the compartments, so that there are no stanchions or braces to trip the unwary. In the original building there was but one public means of entrance and exit; now we have two — a new, wide door, to be opened in case of need, has been set in the east end of the building.

It should be apparent at this point that in start-



Our Galapagos Tortoise collection now has ideal quarters behind glass, with a sandy area on one side and a shallow pool. The big Tortoises are fond of water and are in it almost daily.

ing virtually from scratch and designing a close-to-ideal Reptile House, we have been concerned very greatly with the comfort and well-being of the inmates. That concern goes even further, for we now have for the first time an adequate storage and laboratory space. It was obtained by the simple device of building a mezzanine floor, a sort of second-story, without raising the roof or otherwise changing the exterior of the building. Not only does it provide work space and laboratory room, but it makes for better visibility of the exhibits by darkening the public space.

In any reptile collection, there are bound to be many specimens for which there is no immediate exhibition space. Our mezzanine allows us to hold these indefinitely. Scientifically, indeed, this gallery is the most important part of the new building, for here we hope to learn many important facts about the biology of reptiles. There is a snake-proof quarantine room where new arrivals can be observed in isolation before they are placed on exhibition, a large variable-temperature cage for studying the temperature and humidity requirements of our specimens, insect culture boxes for rearing some of the insects used as reptile food, storage space for equipment and the controls for the music in the public space.

In the long run probably no other single element in the Reptile House will prove to be as valuable as the plain, gray "Question Box" in the mezzanine laboratory. For many years it was thought that all reptiles were heat-loving animals with wide variations in body temperature and that they kept their temperature within a degree or so of their environment. Experiments by a number of recent investigators have taught us to give more careful attention to the temperature factor in the biology of reptiles. We now know that they have a more or less constant temperature when they are active and that species differ in their temperature needs. We know that within the range of toleration virtually all life functions are carried on more rapidly at higher than at lower temperatures; that there are temperature limits below which some functions cannot be performed sufficiently well for survival. By the same token, there are upper temperature limits

Feeding time in the Crocodilian Nursery is one of the highlights of the afternoon. The young Alligators come to the edge of the ledge to be fed with bits of fish by one of the keepers.

at which animals cannot live for very long. Reptiles, particularly snakes, very definitely can be killed by exposure to high temperatures.

Unlike mammals and birds that derive heat mainly from within their own bodies by the oxidation of food, reptiles, amphibians and fishes depend on external sources of heat. Through their behavior they orient their bodies towards or away from the sources of heat and thus keep themselves close to the average activity temperature of their kind. While they are digesting a large meal they generate some internal heat, but this is slight in comparison with the temperature needed for normal activity.

We know *some* of the temperature factors that enter into the successful maintenance of a large collection of reptiles, but we do not know the detailed needs for any species for all its activities. In the Question Box – a variable temperature apparatus – we expect to learn facts that we can put into application in our exhibition cages.

The box itself is a mere wooden structure eight feet long and six feet wide. It is divided lengthwise by a solid vertical partition with a low central opening at the bottom. One side of the partition is kept dry, the other moist. Four individually controlled heating cables are buried under four inches of earth in the floor. They can be set to give a desired temperature gradient from one end of the box to the other.

In the Question Box, then, a reptile can have its choice of environments: hot-and-dry, warm-and-dry, cool-and-dry, or hot-and-moist, warm-and-moist or cool-and-moist. A screen top permits us to note what a given specimen prefers under given conditions – and when it is ready to go on exhibition we will be able to duplicate those conditions, thanks to the temperature and humidity controls in individual exhibition cages.

So much for a description of the actual building – but what of the collection on "reopening day" on May 26? We have no record of the

Museum types of exhibits are combined with living specimens along the south wall of the Reptile House. Visitors start their tour here and can learn many general facts about reptiles.

complete collection in the Reptile House on November 8, 1899, but it is highly doubtful if it approached our present collection, for efforts were too dissipated in opening the whole Zoological Park to concentrate as we were able to do. Our former excellent exhibition of reptiles was of course seriously depleted as the time for the reopening drew near; in part naturally, but largely purposely, for the building had to be completely emptied for many months and there simply was not storage space elsewhere in the Zoological Park for all the specimens. They had been sold, given away and exchanged with promise of repayment later. When the time for replenishing came, we realized the worth of our friends in all parts of the world. It is, in fact, no exaggeration to say "in all parts of the world," for specimens came flooding in from near and far. Fellow herpetologists at the San Diego Zoological Park had been saving choice specimens for us for almost a year. A friend in Ceylon hastily got together material in response to our call for help; another in Nyasaland sent us the only Giant One-horned Chameleons on exhibition in this country; others sent rare frogs from the Hawaiian Islands and Panama and snakes from Africa, Australia and Panama. Not all the contributors were so distantly placed, of course. Some in Manhattan, Staten Island, the Bronx, Brooklyn and Bear Mountain helped out most generously.

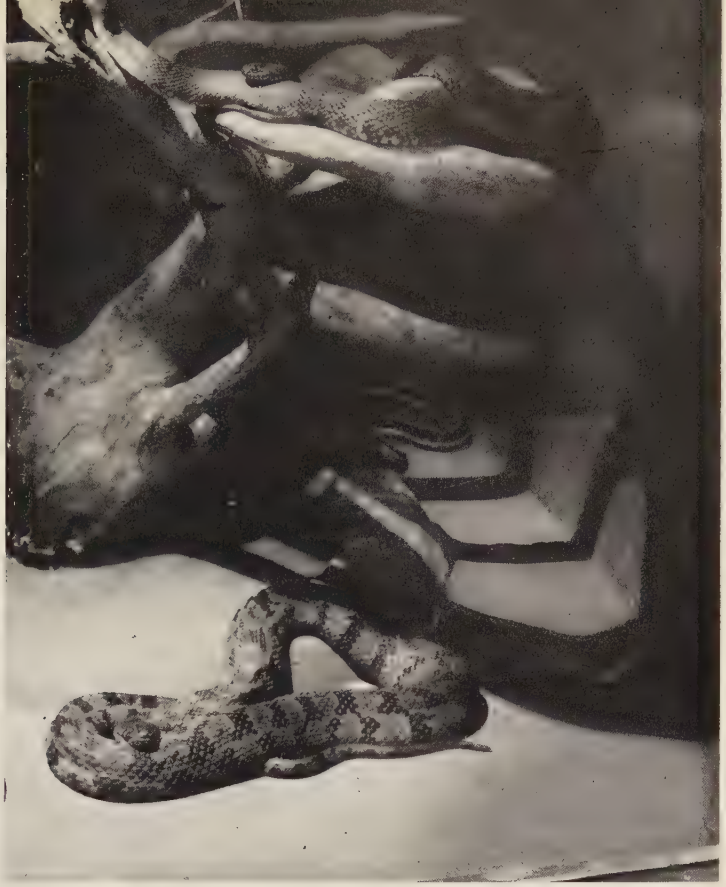
Nor was this last-minute outpouring without incident. One collector in Australia was bitten by a venomous snake he was trying to bag for us and subsequently went through what he laconically described as a "rather rough time." In our own southwest we had engaged a professional collector to send us a subspecies of Copperhead at an agreed price of $2 each. The snakes came, and the bill — at $2.50 each. The collector explained the increase in his price by the fact that he was bitten by one of our snakes and had to spend $11 for serum and hospital treatment, and he hoped we would not object to a price that

would repay part of his outlay. We didn't object.

As always in the gathering of a large collection, the reputable animal dealers provided some of the unusual and most of the more familiar foreign species. Perhaps the most spectacular single exhibit on "opening day" was a large female Indian Python incubating her eggs. She was purchased from an animal importer and arrived just two days before the building was reopened. On the way to this country from India she deposited her eggs in the shipping crate. Pythons are unusual among snakes, in that the female coils about and actually incubates her eggs, instead of simply depositing them in rotting vegetation or some other protective medium and leaving them to hatch by themselves, as most egg-laying snakes do. When the snake arrived we worried about the business of moving her from her box into her new home without disturbing her to the point of abandoning her eggs. She was finally covered with canvas and lifted bodily, eggs and all, into the front of her compartment. Luckily this did not alarm her too much and she remained coiled, although she did make a warning strike or two when approached too closely. There was a most happy sequel to her incubation and the results of her efforts are pictured on the cover and on pages 112 and 113 of this issue of *Animal Kingdom*.

This article has set forth some of the many considerations that went into the making of our "new" Reptile House. Set down one by one, they seem to be isolated aims, but actually they are blended more or less unconsciously in the formula that brought the building to reality. The degree to which they were achieved is attested by the exhibits themselves. Because of the happy combination of efforts that expressed these aims, we take pride in claiming to have the best Reptile House in the world, and the most beautiful. It is not the best because of any one feature, but because of the amalgamation of special treatments. In the words of two of the Zoological Society's Presidents, spoken so many years apart, the building is truly "another step forward in our determination to make the Bronx Zoo the most beautiful and interesting place of its kind,"

The second-story laboratory contains a snake-proof screened room for holding newly-arrived specimens. The big gray "Question Box" will solve temperature and humidity problems.



Many persons in many parts of the United States contributed decorative material that made it possible to create compartments such as this striking one.

where we are bringing the wonders of natural science "within the reach of thousands and millions."

IT IS A FINAL PLEASURE to record the names of those who created the building and its exhibits. Architects of the over-all alterations were Edward C. Embury and Nicholas K. Lucas, with Aymar Embury II as consulting architect. The contractor was D. Fortunato, a member of the Zoological Society. The interior designs and decor were supervised by Harmon H. Goldstone with the assistance of color consultant Teresa Kilham, sculptor Edward S. Maps and horticulturist Thomas Everett, the latter on the staff of the New York Botanical Garden. The final installations and last-minute modifications were swiftly and expertly performed by the construction personnel of the Zoological Park, and the entire remodelling program was under the capable supervision of Quentin M. Schubert, our Superintendent of Construction and Maintenance.

It is possible to mention only a few of the contributors to the decoration of compartments. Coral rock was donated and shipped to us by E. T. Collier of the Naranja Rock Company, of Naranja, Florida. Some time ago great quantities of black pebbles were collected by the children of Greece on the island of Rhodes and were sent to the United Nations for use in a fountain; part of the surplus was made available to us by David Vaughan, Assistant Secretary General of the U.N., and the Greek Ambassador to the U.N. Half a ton of surplus rock crystals, beryl, serpentine, mica and other stones was donated by the Department of Mineralogy of the American Museum of Natural History. Large Saguaro cactus skeletons were given to us by J. E. Thompson, Jr., of the Boyce Thompson Southwestern Arboretum at Superior, Arizona. Curious and beautiful pieces of driftwood were obtained from Ned Thomas of Brooklyn. The Metropolitan Museum of Art, through its Department of Egyptology helped to create the attractive and authentic design of the doorway in the Nile Crocodile enclosure. There were many other eagerly cooperative individuals and institutions. We – and the reptiles that benefit thereby – owe them all gratitude.

THE UNPREDICTABLE PLATYPUSES

By ROBERT M. McCLUNG

Last year at this time, as members of the Zoological Society will recall, we thought that Penelope, our female Duck-billed Platypus, had babies in an underground nest. All her actions during the summer of 1953 seemed to point in that direction.[1] It was with high hopes, therefore, that we dug into the nesting bank on November 5. We found Penelope, all right — but no babies.[2]

Penelope and Cecil were promptly placed in their indoor winter quarters, and we closed up the outdoor Platypusary for the winter, vowing to give the matter of breeding Platypuses another good try this year. We determined to put them outside as early as weather permitted this spring, to give them the best chance possible. On May 7 they were placed outside, and we began to exhibit them on the 11th.

Our strategy was as follows. Each day Penelope was exhibited from 2:00 until 3:00 p.m. Then Cecil was ushered into his exhibition pool before Penelope was allowed to go back into her wooden burrows. In this way, she could easily be aware of the male Platypus in the adjoining tank, for there were several wide cracks in the partition between the two tanks. If she showed any interest, we would be able to observe it at once.

On the afternoon of May 18, Keeper John Blair observed that as soon as Cecil was put out, Penelope swam over to the partition and began scratching and nuzzling at the door. The door was opened, the two animals came together, and immediately began preliminary courtship and playing in typical Platypus fashion. Cecil seized Penelope's tail, and they slowly swam in circles. This alternated with much nuzzling of each other's back and tail.

Daily thereafter, from May 18 until June 10, Penelope and Cecil were allowed to be together for an hour or more each afternoon. Courtship continued vigorously. Cecil took the initiative each afternoon and pursued the not-unwilling Penelope. Courtship usually started with Cecil seizing Penelope by the tail. This action was accompanied by a great deal of mutual nuzzling and "barrel-rolling." In this maneuver Penelope would roll over and over in the water, seemingly trying to break loose from Cecil's grip on her tail. When she was successful, however, she would usually swim back to him. Both animals seemed to tire of aggressive courtship after about an hour's time, and be more interested in feeding.

All during these three weeks, the Platypuses were under constant surveillance while they were together. We wanted to know when actual mating occurred, if possible. Penelope had not yet been allowed access to her clay bank, for once she had dug burrows she would not be available except when she chose to come out. Our idea was to wait until we were fairly sure that actual mating had occurred before letting her dig her burrow and build her nest. Observations in Australia by David Fleay indicated that there was a period of approximately two weeks between mating and the actual laying of eggs. This would give Penelope the time necessary to dig her burrow and prepare her nest.

An alternate course of action would have been to open up the clay bank, and also take away the pool barrier so that the Platypuses could be together whenever they desired. If we did this, we would not know whether Penelope got enough to eat, for she usually did not enter the pool of

[1] The Outlook for a Baby Platypus. *Animal Kingdom*, Sept.-Oct., 1953, p. 146.

[2] No Baby Platypus! *Animal Kingdom*, Nov.-Dec., 1953, p. 162.

This is Platypus courtship. Cecil, the animal in the lower part of the picture, has seized Penelope's tail in his beak and they are beginning to swim in slow circles. Apparently this act has never before been photographed.

her own volition before 8:00 p.m. or even later in the evening. By this time, Cecil could have eaten most of her earthworms and crayfish ration, as well as his own.

It was not until June 1 that we observed a behavior variation that may have been actual mating. The complex maneuvers were repeatedly observed and were photographed in motion pictures by Staff Photographer Sam Dunton. A technical description, with illustrations taken from the motion picture film, will be published later in the Zoological Society's scientific quarterly, *Zoologica*.

On June 10, reasonably satisfied that Penelope had been mated, we allowed her access to her clay bank. That night she commenced to dig, and thereafter spent most of her time in the clay bank. She was in her wooden burrows, however, the next day, and was put in the pool with Cecil. Courtship behavior similar to the previous day's took place. After this episode, Penelope dug almost nightly in her clay bank and remained in it during the day. She came out to feed about 8:00 p.m. or shortly thereafter each night, except the night of June 14, when she did not appear at all. On three occasions since then the two animals were put together in the evenings, but their interest in each other seemed mild.

If Penelope had actually been mated, we calculated that somewhere around June 25 she would retire into her nest for a week to lay and incubate eggs. Dried eucalyptus leaves were nightly floated in her pool for use in nest building, but she ignored them. June 25 came and went with no change in Penelope's behavior. She came out each evening to feed. By the first week in July it seemed clear that nothing was going to happen.

And that's where we stand at present. We have again shut Penelope out of her clay bank so that we can start all over again, putting the two animals together daily to see if they are interested in courting. If so, who knows? Platypus behavior — at least the behavior of Penelope and Cecil — is unpredictable.

ZOO NEWS IN PICTURES

Photographs
by
SAM DUNTON

THE FIRST BLESSED EVENT
IN THE REPTILE HOUSE

LOWER LEFT — This was the sight that greeted our guests on opening day of the Reptile House — a 15-foot Rock Python coiled around her eggs. This picture is by Al Ravenna, staff photographer of the New York World-Telegram & Sun, made May 26.

A PLETHORA OF CUBS

ee Jaguar cubs born on April 11 re not properly cared for by the ther, and so they have been reared Mrs. Helen Martini in her home t) and in our Animal Nursery. y are growing fast and will be on exhibition as soon as room available. Mrs. Martini has had usy few weeks, for she is also ring a baby Tiger born on May 7.

NTER BELOW — Hatching of the clutch of thirty gs began on June 18 and ended on June 21. Only of the eggs hatched, but during those three days e snakes poked their heads out in all direc- s. The female uncoiled when hatching started.

LOWER RIGHT — One of the two-foot youngsters begins to emerge from the egg. Most of them stayed in the leathery shell for several hours after hatching began. Since emerging, they have been feeding well. Eventually most will be sent to other Zoos.

THE EMPEROR OF ETHIOPIA VISITS THE ZOO

Haile Selassie, Emperor of Ethiopia, paid a surprise visit to the Zoological Park on July 2. He made a complete tour of the Park, but reserved his warmest smiles for the Animal Nursery. Mrs. Martini showed him all her pets, including this Long-eared Hedgehog, a recent arrival from the Biblical Zoo in Jerusalem.

IT HAS A GOOD FOSTER MOTHER

Monkeys ordinarily make excellent parents, but the mother of this baby Wanderoo was so incompetent we had to take over. Now it has a home in the Animal Hospital as the special charge of Nurse Mary Murphy. The baby has been named "Kenneth." Nurse Murphy takes it home at night by subway.

DISCOVERED - The Nest & Egg of the Black-winged Bellbird

By WILLIAM BEEBE

Head of the Black-winged Bellbird, with its "mossy" wattles. (From an illustration in "Birds of British Guiana," by C. Chubb.)

SEVERAL THINGS IN LIFE I have desired to see beyond others: Wild pheasants in their homes in the Himalayas, a glimpse of life in the black depths of the sea, the beginning of the eruption of a volcano, and the nest of a bellbird.

By sheer good fortune the first three have been realized. For forty-five years, until now, the fourth has evaded me and, for that matter, all other ornithologists.

At the Department of Tropical Research station at Simla, in Trinidad, in late March we received word that the nest of a Black-winged Bellbird had been located. For five years we had had similar news, and vague reports had placed the nests in lofty bromeliads, in holes in tree trunks, even on the ground. But the birds were never in the vicinity, and the nests were non-existent. Hope never dies in these matters and we agreed to investigate this latest alleged nest.

Procnias averano carnobarba is the Trinidad bellbird. It was named by Cuvier 137 years ago, the type coming from the island itself. Nothing has since been learned of its courtship, nest, eggs or nestlings. The same sub-species inhabits the forests of tropical British Guiana and parts of Venezuela, north Brazil and Colombia, in none of which countries is its nidification known. The same ignorance applies to the nesting of all four living species of bellbird.

The Black-winged or Mossy-throated Bellbird lacks the blue and purple of a Cotinga, or the orange-red of the Cock-of-the-Rock, or even the glaring white of the Guiana Bellbird, but the colors of both sexes are unusual and pleasing. The male has the forehead, crown and nape coffee-brown. Above and below the plumage is silvery gray, with black wings and white tail.

He has the bizarre badge of his family, comparable with the upright wattle of the White Bellbird, the feathered fan of the Cock-of-the-Rock and the amazing feathered canopy of the Umbrellabird. From his throat there depends, for no reason that we know, a tuft or bunch of elongate, stringlike, fleshy caruncles. They are not connected with any internal organ, they cannot be erected, they are black. They serve only to enhance our ignorance and to inspire the scientific name *carnobarba,* the bird with the fleshy beard.

The female is dark green above, with pale

shaft lines on the head and nape. The throat is gray. The abdomen and sides are green streaked with yellow, changing posteriorly to uniform sulphur-yellow on the under tail coverts.

In Trinidad, the voice of the male bellbird is often heard in the valleys of the northern range of mountains, near Simla, especially in the early months of the year. Up to the present time it has been little more than a wandering voice. Perhaps a static voice would be more accurate, for the male has a favorite perch and calls from the same tree day after day, and month after month. The various common names are almost all connected with the voice: Bellbird, Capucin, Cong, Campanero, Anvilbird. The latter name is the most appropriate, for the sound is that of a hammer striking upon an anvil. This is unlike the note of the White Bellbird of British Guiana, which has a more sonorous, bell-like quality. The utterances of the Black-winged vary slightly, sounding like *Conk* or *Tong, Kuk* or *Crok.*

At two in the afternoon of March thirty-first I started in the car with Henry Fleming and John Matthews the guide. We drove north up the Blanchisseuse Road to the summit, and on to the twelfth milestone. At this point the Paria-Brasso-Seco Road branches off to the right and this we followed for several miles. The coastal mountains and valleys, covered with dense government forests, extended in a majestic panorama to the north. Along the road were many cacao trees with dependent red and yellow pods, alternating with jungle and occasional tall tree-ferns. The farther north and east we went, the wilder the

This tall tree in the Northern Range of Trinidad was the favorite calling place of the male.

This is the first nest ever discovered of the Black-winged or Mossy-throated Bellbird. It was found in Trinidad by Dr. Beebe on the afternoon of March 31.

forests, and we had frequent reports of peccaries, monkeys, labbas, guans and sparkling-necked pigeons.

Finally, after thirteen miles by car, we took to a steep, well-trodden path and climbed a twisting grade for some distance. Suddenly the *Conk!* of a bellbird sounded close overhead and continued as we climbed on. When the path degenerated into a narrow trail, we seemed to be directly beneath the bird. The sound came from high up in a lofty tree. From a small, side ravine both Henry and I caught sight of a bellbird as it changed perches between calls.

The notes, as usual, were of two kinds: loud, isolated, vocal explosions, alternating with a series of lower syllables, *tong-tong-tong-tong,* with a twangy tone. The following is a few minutes' record of the calls of this particular bird. The C stands for single Conks, the numeral for successive number of Tongs. The intervals between Conks varied from one to ten seconds; the Tongs averaged two and one-half to the second.

C,C,C,28. C,C,C,C,C,C,C,9. C,C,C,C,C,C,8. C,C,C,29. C,C,C,6. C,C,C,C.

It is generally thought, erroneously, that the single notes are uttered by the male and the series of Tongs only by the female bellbird.

We passed an area of newly cut timber, the land being cleared for planting, and continued on toward a small house, perched on the steep hillside. Here the owner of the land, Frances Williams, joined us. From him and our guide I learned that this pair of bellbirds had nested in the same place for the past two years, that they reared two broods of two young each season, in February, March and April, and that the male called from the same high tree in which we had heard and seen him. Our guide had noticed a fledged young bird in the nest three days ago and the owner said that it had left the nest only yesterday, he having seen both parents and young.

We climbed down the steep slope, past cacao trees, and at last the nest was pointed out. The male stopped calling at the moment we reached the nest site, and did not begin again until we started on our return trip.

My first glimpse of the nest took me back thirty-six years and nearly four hundred miles to the southeast, to Kartabo, British Guiana, where I had found the nest of the Pompadour Cotinga, *Xipholena punicea.* Its nest was smaller and even more flimsy than the present one, but the same type of flat platform.

Members of the Cotingidae, the family to which the bellbird belongs, differ as much in nest architecture as in peculiarities of voice, feather pattern and color. *Attila* and *Tityra* nest in ready-made holes in the trunks of trees, *Pachyrhamphus* fashions a huge, hollow ball of vegetation, while *Xipholena* and *Procnias* are satis-

fied with a twig nest of the simplest construction, as fragile as that of a cuckoo or a dove.

Fifteen feet from the ground, the nest showed as an open-meshed, shallow platform of twigs. It was near the tip of a slanting cacao tree, partly hidden by the large, pendant leaves. Not until we held the nest branch in our hands did we see the female, but never a glimpse of the newly-flown nestling. Twice the female flew low overhead, once uttering her deep-voiced croak. We neither saw nor heard any bellbirds other than this pair. In fact, during the whole operation only two other species of birds came into view, a Frigatebird drifting high in air from the ocean, a few miles to the north, and eight Amazon parrots flying toward the west.

With the aid of a ladder, rope and saw we severed the branch and eased it gently down. A drop of two feet would have disintegrated the whole structure. It was cradled in the flat crotch of three small branches, and measured roughly five and a half inches in diameter by one and a half inches deep. The foundation was of about 25 slender, lichen-covered twigs, mostly branched in long-armed, Y-shapes. So consistently was this the case that it seemed evident that this shape was intentionally chosen, an instinctive selection because of their interlacing power. The nest could hardly have held together with straight twigs. The lining was an openwork network of some thirty finer, brown twigs, the majority of these too being bifurcated.

To complete circumstantial evidence of the ownership of the nest, there were entangled in the twigs three contour feathers and a secondary of the female bellbird.

An interesting bit of native lore was told us in good faith. Occasionally, dogs refuse to bark when they are hunting, thereby reducing their guiding qualities to nil. A certain cure is to behead a male bellbird, to dry it thoroughly over a fire, then, little by little, to cominute the head of the bird and mix it with the dog's food. In a non-specified length of time the dog will begin to bark lustily!

In line with our consistent policy of studying living, wild creatures rather than shooting them I have made no attempt to collect a bellbird in Arima Valley. The one exception came to us by accident. On January 22, 1950, a dead male bellbird was brought to us by Dr. Newcome Wright. It had flown about his estate house for several weeks, associating with some white pigeons. On the above date it was picked up dead, having flown into a wire, and was brought to me.

I skinned it and recorded the following data: It was a male in advanced breeding condition. Its measurements in millimeters were, length 290, extent 490, wing 157, tail 86, culmen 19, tarsus 27. The bill, feet, legs, barbels and the skin of the mouth and throat, both inside and out, were jet black. The throat was covered with a dense growth of short, black, downy feathers from among which arose the numerous, fleshy, string-like wattles.

The gizzard was distended with a single, whole, oval, green palm fruit, and a second was broken into large pieces. In British Guiana I found the White Bellbird feeding on similar fruit. The courtship, eggs and young of bellbirds still await discovery, and especially the developmental evolution of the strange barbels.

Stop Press News!

THE ABOVE ARTICLE was in type and about to be printed when I received an airmail letter and photographs of a second bellbird's nest from Dr. Wilbur G. Downs, Director of the Trinidad Regional Virus Laboratory of the Rockefeller Foundation, a substation of which is operating on the Zoological Society's estate of St. Pats.

In the course of his search for yellow fever and other viruses, Dr. Downs recently investigated the Cumaca area, about eight miles due east of Simla.

On May 23rd of the present year, just 53 days after the discovery of our nest number one, a huntsman who was guiding Dr. Downs, informed him that he knew where there was a bellbird's nest. I continue in Dr. Downs' own words in his letter to me:

"This nest was located about fifty yards from

On May 23 this second nest, with a single egg, was found by Dr. Wilbur G. Downs in another part of Trinidad. The photo is by Dr. Downs.

the house of a man named Patron at Cumaca, about 20 feet up in a cacao tree. The first day I visited the area I saw both the female as she flew from the nest, and the male nearby. When I returned, a couple of days later, the female again flew from the nest.

"I took the nest and the single egg and made a series of photographs which are being sent to you, airmail. The egg had a fully developed embryo, which was removed. I shall be glad to send it to you.

"The same guide also showed me another bellbird's nest which had been used the season before. This nest was also about 20 feet up in a cacao tree, right at the edge of the Cumaca trace, where people daily passed within a few feet of the sitting bird."

In answer to a cable which I sent at once to Dr. Downs, asking for a description of the egg, he replied: "Bellbird egg is light tan, mottled, especially on larger end, with brown. Measurements 40.3 x 28.4 mm."

For comparison with the photographs of nest number one, I have added one of Dr. Downs', showing the second nest and the egg.

Points of especial interest in this discovery of a second and third bellbirds' nests are, the identity of location, fifteen and twenty feet up a cacao tree, and the similarity of structural materials and characteristic flimsiness of the nest. The very number of component twigs appears to be about the same. Another striking feature is the restricted geographical distribution, for if we imagine an equilateral triangle with eight-mile sides, the apexes would be occupied respectively by Simla, Nest Number One, and Nests Two and Three. The date extends the breeding season through May. Also we learn that a single egg may sometimes be incubated. Finally, the egg itself represents the first to be recorded of any species of bellbird.

FOUR BABIES FROM ALASKA

By ROBERT M. McCLUNG

HARBOR SEALS AND BALD EAGLES, though once native to the New York area, are now rarely seen in these parts. They are so plentiful, however, in certain parts of Alaska, that they are sometimes looked upon in quite unfriendly fashion by natives of that vast territory, especially fishermen. Seals and eagles are both primarily fish-eaters and as such are inevitably considered as pests by commercial fishermen where they occur in any great numbers. At present Alaska pays a bounty on Harbor Seals and one was paid on Bald Eagles until two years ago, when, happily, it was removed.

This being the case, it would seem to be a comparatively simple matter to get specimens of seals and eagles from Alaska for exhibition. Just recently we did receive two young male Alaskan Harbor Seals and two fledgling Bald Eagles, but it took months of planning and lengthy correspondence, as well as the time and effort of a number of people, before the animals were actually collected and transported to New York.

It all started last fall, when Dr. Oshin Agathon, a member of the New York Zoological Society and an enthusiastic explorer and naturalist, asked whether we would like him to try to get a couple of eagles for us on his trip to Alaska this spring. We told him that we certainly would like them. Our last Bald Eagle, donated to us in 1931, had just died in August of 1953, having been in the collection for 21 years and 11 months. This was a Southern Bald Eagle, collected on Little St. Simon's Island, Georgia — a handsome and striking bird but not as large as the northern form. We also indicated that we would be happy to get a young male Harbor Seal as a possible future mate for our two females. Dr. Agathon, who in recent years has made collecting for scientific institutions his hobby, said he would do his best. So the machinery was set in motion.

Early this spring a permit to take two young eagles was obtained from the U. S. Fish and Wildlife Service. Dr. Agathon then corresponded with friends in Alaska — fishermen and seal-hunters, both white and native Tlingits Indians — asking them to be on the lookout for paired Bald Eagles and nests. In preparation for his trip he chartered a boat and a light plane.

Early in May Dr. Agathon arrived in Yakutat, Alaska, his base of operations. There he was met by Mr. Hardy Trefzger, his friend and guide. Preliminary investigation by these two showed that the eagles were nesting later than usual this year. No accessible nests were found which had fledglings in them yet, so Dr. Agathon decided to try for seal pups first. I will let him tell the story in his own words:

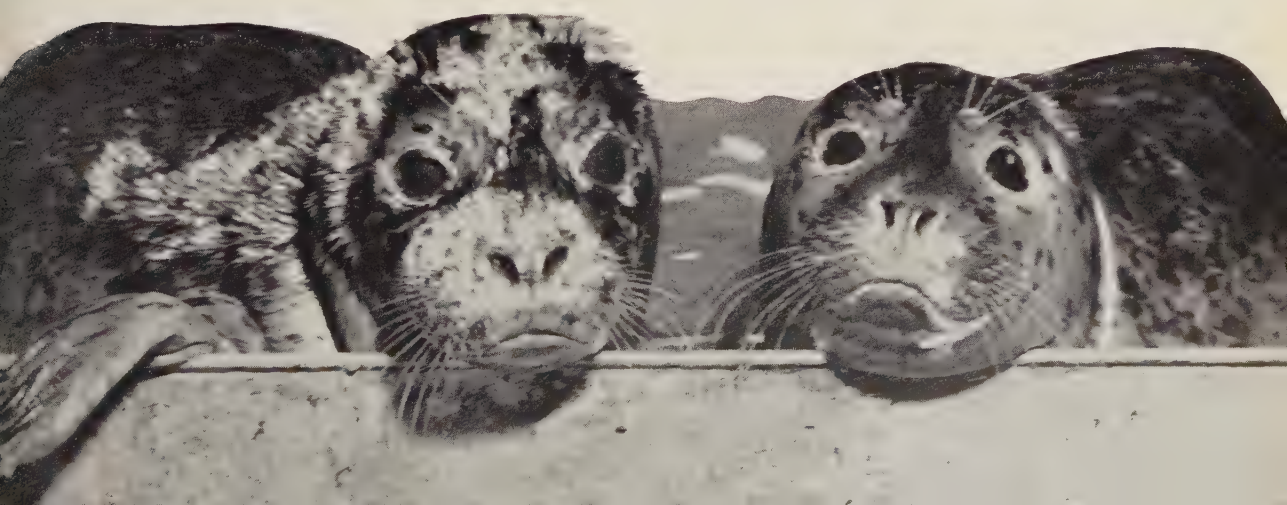
"In Alaska, Harbor Seals are born in May or early June. They are plentiful among the ice floes discharged by the tremendous Hubbard, Seward and Haenke glaciers into the icy bays of southeastern Alaska. There they are hunted extensively for the bounty; for their liver, which is considered a delicacy; for their skins, which are used for moccasins and other articles; and for their blubber, which either raw or rendered, is still eaten by a number of Indians.

"The actual capturing of seal pups was delegated to Mr. Clem Simmons, a resourceful bush pilot and fisherman, and his two helpers who were seal-hunting at Icy Bay, a seal breeding ground about 70 miles north of Yakutat.

"The seal hunters first failed when they tried to stalk seals resting ashore. Seals have good eyesight and do not stray far from the relative security of the water. They have been hunted so extensively that they are difficult to approach. The hunters then resorted to a much more hazardous method, hunting through the ice floes in a light boat. Hidden by jutting blocks of ice, they sneaked up with heavy nets to the bergs on which they had spotted young seals which their mothers had left alone on the ice while they hunted briefly for food.

"It was a tricky business. Some of these floes are small and unstable. More often than not, by the time the hunters could throw their nets, the seal pups would have disappeared into the water. If the mother seal also happened to be on the ice with her youngster, she would push it into the water, or it would quickly follow her as she dove. Young Harbor Seals are able to swim very soon after their birth.

"The trappers were finally successful in capturing three young seal pups, all about a week old. These were flown back to Yakutat, and the



In this screened shipping crate the Harbor Seals were delivered to the Zoo at the end of their comfortable flight from Alaska.

They were too young to know how to eat fish and both seals had to be fed on a mixture of fish and oil administered by tube.

problem of feeding them commenced. Analysis of seal milk indicates a very high fat content, and zoo personnel had suggested a mixture consisting of six parts of evaporated milk, three parts of vegetable oil, and one part cod liver oil. The seal pups refused to nurse from a bottle, so Clem Simmons and his assistants took a heroic step. First they filled their mouths with the lukewarm mixture, then opening the pups' mouths, they blew the liquid into them. This did not work too well, as can be imagined. Simmons then decided to try force-feeding with a thin rubber tube. With this, he was able to blow the liquid into the young seals' stomachs, but not without a major struggle on the part of all participants.

"It was later decided to train them to take a nursing bottle, but a single feeding in that way seemed to be more of a hardship on the animals than the force-feeding, for it took two and one-half hours to get them to drink approximately eight ounces of the oily mixture, which they were fed three times a day. They readily adopted their foster parents and followed them, crying 'maw' like a child."

Two of these youngsters finally made the trip from Yakutat to New York. Extensive arrangements had been made with the airline to insure their safe arrival in the quickest time possible, and when they finally arrived at the Zoo on the afternoon of June 4 they seemed in reasonably good shape after their long trip.

For the next several weeks they were housed at the Zoo Hospital. Weighing 19 and 22 pounds upon arrival, when they were approximately two-

and-a-half or three weeks old, they have progressed fairly well. Even yet we have been unable to get them to suckle successfully from a bottle, though many different methods have been tried. Tube feeding has been found easiest and quickest — a matter of minutes. We hope to be able to wean them to eating fish soon, and then they will be introduced to the two female Harbor Seals in our outside pool. It should be noted that these Alaskan pups are the form known as the Pacific Harbor Seal (*Phoca vitulina richardii*), while the two females are a European (*Phoca vitulina vitulina*) and a California Harbor Seal (*Phoca vitulina geronimensis*), respectively.

With the seal venture safely concluded, Dr. Agathon set to work with energy to get the young eagles. The very late spring of 1954 in Alaska complicated matters. Several accessible nests were spotted during trips to Russell Fjord and Disenchantment Bay in late May, but these had only eggs and no young ones, although at this time of year eaglets are usually hatched out and growing daily at an amazing rate. Dr. Agathon was anxious to bring back young birds in good condition, not too young and not too old. If too young, they might not have survived the trip to New York; if too old, it would be harder to adapt them to captive conditions. The following account of the locating of the nest and taking the young are again in Dr. Agathon's own words:

"Returning after two weeks to Yakutat and the alluvial flats of Dry Bay, we scouted by plane for nests. The nest which had been selected last year because of its accessibility unfortunately was deserted this year. The nearest convenient nest on a rocky, wooded promontory in the middle of the flats was in the top of a century-old and very tall cottonwood tree. Just to reach the base of that nest through the jungle of tall salmon berries and fiendish devil's club required quite a bit of trail blazing. It was impossible to climb the tree. A forty-foot ladder would have to be built. From a fisherman's hut fifteen miles away, a twenty-foot section was obtained and carried by jeep to the vicinity of the cottonwood trees. This proved too short; so the men spent many hours beach-combing the nearby Pacific shores for suitable driftwood, 2 x 4's, to make the additional length required. Finally, the forty-foot ladder was completed.

"Pushing it up the tree was no easy undertaking, for it required the clearing of a large space, and even then it fell short of the lowest limb from which a man could climb. At this time they still did not know whether eggs or young birds would be found in the nest, but most anxious to find out, they applied the ladder against a shorter nearby tree which Hardy Trefzger then climbed and from which he could see the interior of the nest, in which he reported two fine white eggs — as yet no birds. The ladder was left against the tree and the nest left undisturbed for about a week, although once in a while one of the three or four men in the party would sneak up the tree and peek into the one on which the nest was built.

"On Friday, June 11, 1954, the news finally came down: the eaglets were hatched — a cause for celebration! All agreed that it would be best to leave the young birds under their parents' care as long as possible, and I left that section for other work. On Saturday, June 19, my three good friends and assistants, to whom I give full credit for the success of this venture, namely, Hardy Trefzger, Clem Simmons, and Jake Mollan, shifted the ladder to a new position on the tree with the nest, and Clem Simmons was able to reach the lowest limb with a rope and to pull himself up and then climb to the nest. There, he picked up the two young birds, and with the help of a large handkerchief and a light nylon rope, he lowered them gently to his acolytes on the ground. That same day he flew Hardy Trefzger and the young birds to Yakutat where they were received with the enthusiasm one can imagine on my part. I immediately set about feeding them on what I thought from previous experience would be a good diet, namely, boiled large sea gull eggs (collected by the natives for food), fresh hamburger, and fresh salmon—all mashed together and slightly moistened. As distinguished from the baby seals which had to be force-fed with a rubber tube, the baby birds took readily to their new foster parent and the food I gave them. After a little coaxing they readily grabbed the food offered, showing no fear and no apparent resentment of the careful and friendly handling they received. In fact they became perfectly tame in a matter of days."

The birds were accompanied by Dr. Agathon

on the plane trip to New York. At each stop he fed them. It was a blazing hot day when Zoo personnel met the eaglets at the airport, and they obviously were not liking the heat.

However, they have adapted and are doing well at present, taking fish, meat and mice readily.

When we received them, they were just about fourteen days old, still in their gray, woolly natal down with pinfeathers just sprouting. They weighed 4 pounds, 14 ounces, and 5 pounds, 8 ounces, respectively. Two weeks later they were rapidly assuming their dark juvenile plumage. By the time they are ten weeks old, they should be slightly heavier than their parents, and have a wingspread of approximately seven feet. They will not assume the white head and tail of their adult plumage until their sixth year.

News from the Conservation Foundation

Model State Conservation Law Available

Demand for copies of "A Model State Conservation Law" which appeared as an appendix to the Foundation's study, "Conservation Law and Administration in Pennsylvania," written by Professor Schulz of the University of Pittsburgh Law School, has caused the Foundation to have the Model Law reprinted as a separate pamphlet. Copies of these reprints are available in bulk at 20¢ per copy for 25 or more copies.

Soil Erosion Survey Completed

Detailed colored maps illustrating the extent of soil erosion in Central and South America have been completed after three years of study as a joint project of the Conservation Foundation and the U.N. Food and Agriculture Organization. These maps will appear along with a text describing the several categories of erosion and interpreting their significance in forthcoming issues of *The Journal of Soil and Water Conservation.* Reprints of the maps and text will be available from the Foundation later this summer.

Progress on Jamaica Study

Peter Stern of the staff of the Research Division has recently returned from a geographical survey of Jamaica. His findings will be used in rounding out factors of resource production and economic needs in connection with the overall Study of Family Life in Jamaica which should be concluded this fall.

"The Making of a River"

The Foundation's new film, *The Making of a River,* will be distributed by Coronet Films, Inc. A preview of this film before completion and integration of the original musical score was offered at the Society's Annual Meeting last January. It is hoped that this film will also be shown commercially in the fine arts theaters throughout the country.

Rome Conference on Population

Robert Snider, the Foundation's Director of Research, has been authorized to represent the Foundation at the forthcoming International Conference on Population to be held at Rome in September. Mr. Snider will also participate in the meeting of the International Union for Protection of Nature in Copenhagen in August.

Participation in Wildlife Studies

The Conservation Foundation will participate with the Zoological Society in sponsoring two important wildlife studies. A study of Bighorn Sheep will be conducted by Dr. Helmut Buechner of Washington State College and a study of the Influence of the Prairie Dog on Prairie Ecology will be conducted by Dr. Karl Koford, presently of the University of California, in collaboration with Dr. Raymond Hall of the University of Kansas. Dr. Koford will become a research associate of the University of Kansas for the duration of this study.

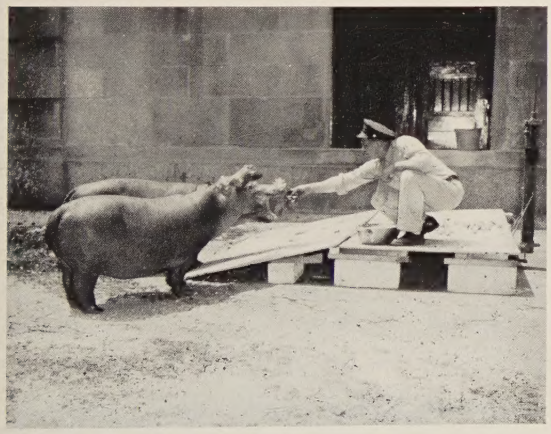
BEHIND THE SCENES

NEWS AND NOTES OF THE ZOOLOGICAL PARK, THE AQUARIUM AND THE DEPARTMENT OF TROPICAL RESEARCH

Peter the Second Officially Is Two Years Old

Unless an animal is born in our collection or in some other zoological park it is usually impossible to establish the exact date of birth. We were fortunate in knowing the whole history of Old Pete, our Hippopotamus, which died on February 1, 1953, at the known age of 49 years, 6 months and 19 days. About his successor, Peter the Second, or "Little Pete," we cannot be so sure, although when he arrived in the summer of 1953 we estimated his age as "about" one year.

In honor of Old Pete, whose birthday was July 13, we have arbitrarily chosen that date as Little Pete's anniversary, to be suitably celebrated



Pete's "official" birthday party

if he eventually begins to approach the advanced years of his predecessor. Little Pete is not as tractable as Old Pete, as we found on July 13 when we tried to weigh him without forcing him into a crate – a procedure he strongly resents. We had no luck at all.

Dacca's Cubs Doing Well

One of the best shows in the Zoological Park at present is provided by Dacca, our Tiger mother, and the two cubs that remained with her after their birth on May 8. The two little males have been named Mota and Kala. A third cub, too weak to be left with its mother, was reared by Mrs. Helen Martini and has been named Fer. It will be reunited with its brothers in about a month, after Dacca weans Mota and Kala.

Early-Morning Donations

Several times in recent months our Curator of Reptiles has been stopped by the gateman at the Service Gate of the Zoological Park with the report that "You just missed him." "Him" turned out to be John H. Phipps, a Trustee of the Zoological Society, who had paid a hurried call to the Reptile House between 8 and 9 A.M. to leave a welcome collection of reptiles. We owe to his interest such specimens as Florida King Snakes, a large Florida Soft-shelled Turtle, a Pigmy Rattlesnake, Scarlet King Snakes, Corn Snakes and Water Snakes.

Aquarium Associate Gets Award

Dr. Homer W. Smith, Professor and Chairman of the Department of Physiology of New York University College of Medicine and a Research Associate in Physiology at the Aquarium since 1938, has been given the Passano Foundation Award of $5,000 for his many contributions to knowledge of the physiology of the kidney. Many of his basic experiments on kidney function in fishes were performed at the old Aquarium at the Battery.

Fairy Bass at Aquarium for First Time

Two specimens of the Fairy Bass, *Gramma hemichrysos,* are now on exhibition in the Aquarium through the courtesy and efforts of Frank Trevor of the Millbrook School and Roswell Miller of Millbrook, N. Y. These small but brilliantly colored marine fish are found in the West Indies and Bermuda, and although abundant in local areas are very difficult to capture.

Ours were taken on the reefs around Rose Island near Nassau in the Bahamas, and are apparently the first ever exhibited in the United States. – J.W.A.

Dr. Gordon In Brazil

Dr. Myron Gordon, the Aquarium's Geneticist, is attending the Sixth International Cancer Congress in Sao Paulo, Brazil. He is presenting a paper based on work in our Genetics Laboratory.

It's the Same Fish

When most fishes hatch from the egg, they do not at all resemble their parents. Besides being extremely small, they are in an undeveloped state, with fins and scales that are poorly formed or absent altogether and with little or no pigmentation except in the eyes. In addition, they are burdened with a large yolk sac which hangs underneath them and is frequently so heavy that it keeps them from moving about. This state of affairs is well known to scientists, who call such baby fishes *larvae*.

Spectacular changes must occur before these larvae assume the form of the adult fish, but once the yolk sac has been absorbed and the fins, scales and pigmentation have developed, the little fish remains pretty much the same in overall appearance for the rest of its life.

An unusual exception to this generality has been brought to our attention by our Giant Gouramis, *Osphronemus goramy*. The changes that our large specimen underwent while growing up were so striking that we suspected there might be something abnormal about the fish. The tremendous enlargement of its lower jaw, as well as other less prominent alterations, gave to it an almost entirely new appearance.

The Giant Gourami is an important food fish in the tropical Far East, and so we made a point of showing our large specimen to some East Indian fish culturists on a visit to New York. They assured us that our Gourami was a perfectly normal individual and that young and adult Gouramis do indeed at first glance look like different species. – J.W.A.

Can You Spare a Back Number?

Quite a number of back issues of the Zoological Society's Bulletin and Animal Kingdom are out of print or in very low supply. We have many requests for them from libraries and individuals and if any of our Members can contribute any of these issues, they may be sure they will be put to good use.

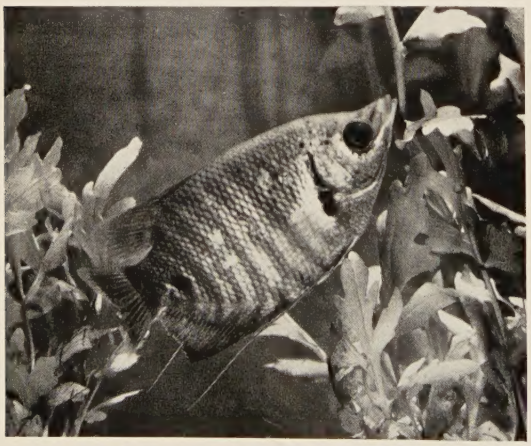
Bulletin

1914. Vol. 17, No. 1
1917. Vol. 20, Nos. 2, 3 and 4
1920. Vol. 23, No. 6
1925. Vol. 28, No. 6
1926. Vol. 29, Nos. 4 and 6
1938. Vol. 41, No. 4
1940. Vol. 43, No. 4
1941. Vol. 44, No. 4

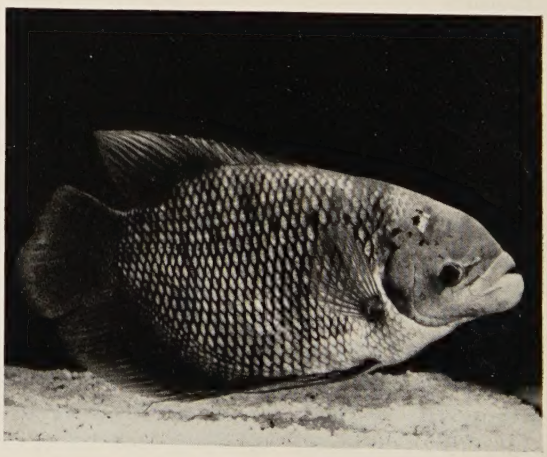
Animal Kingdom

1942. Vol. 45, No. 1
1944. Vol. 47, No. 4
1945. Vol. 48, No. 6
1947. Vol. 50, No. 3
1952. Vol. 55, No. 1

Any or all of the above will be gratefully received at the Publications Office, the Zoological Park, New York 60, N. Y.



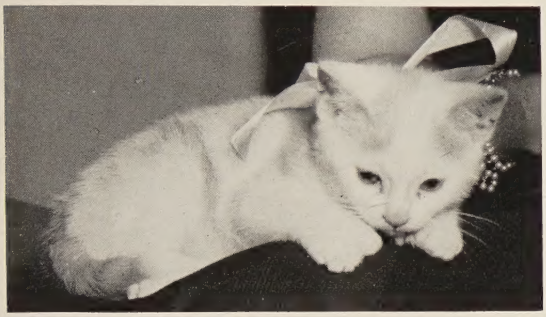
A juvenile Giant Gourami



An adult Giant Gourami

Children's Zoo Kitten Made Her Last Days Happier

For several years our Education Department has been taking pet animals to the children's section of Memorial Hospital, where most of the patients are suffering from some form of cancer. Early this summer a special request came through for a visit in advance of the regular time. A 7½-year-old girl was near death from leukemia and for her "seven-and-a-half birthday" she had asked for a kitten.



Mrs. Ruth Gruber took a kitten from the Children's Zoo, a rabbit and a guinea pig to the hospital that same afternoon and the child was entranced; she had no interest in the rabbit and the guinea pig, but the kitten brought the first smile to her face in several days. Mrs. Gruber was told privately that the end was very near, and so on the following two days she returned with the kitten. On Friday Staff Photographer Dunton made a quick photograph of the kitten, with a ribbon around its neck, and this was left with the child Friday night. She died Monday morning with the picture beside her.

Zoological Park Miscellany

A pair of Black Lemurs (*Lemur macaco* Linnaeus) received from northwestern Madagascar in late July are the first of their kind we have had in 24 years. They will be exhibited in the Small Mammal House. Males are black, but females may be brown or reddish-brown; ours is brown. The male is peculiar in having one brown eye and one yellow eye . . . A baby Euro Kangaroo is in its mother's pouch in the Kangaroo House. It was first seen putting its head out on July 13 . . . Axel Reventlow, Director of the Copenhagen Zoo, has sent us a welcome collection of shore birds, including four European Avocets, four Oystercatchers, four Ruffs, a Ringed Plover and a European Redshanks . . . From Chief Steward Robert Ball of the M/V *Sobo* the Aquarium has received a number of Mudskippers collected on the west coast of Africa. Because they spend so much time out of water, a special tank with a generous amount of "beach" has been set up for these fish . . . An interesting new arrival in the Bird Department is a Sickle-winged Guan, *Chanaepetes goudotii* ssp., found in Ecuador, Peru and Colombia. It is the first of its kind we have ever exhibited . . . In July we sent our third shipment of North American reptiles to the Biblical Zoo in Jerusalem, in an exchange arrangement whereby that institution sends us desert reptiles from the Palestine region.

PUBLICATIONS OF INTEREST

New Naturalist Monographs. Published by Collins, St. James Place, London. Distributed in the United States by John de Graff, Inc., 64 W. 23rd St., N. Y.

The Yellow Wagtail. By Stuart Smith. With 26 colored illustrations by Edward Bradbury, 11 photographs in black and white, 4 line drawings and 4 maps. Pages 178 + XIV. 1950. Price $2.50.

The first publication devoted to a single species of bird, of a projected series on British fauna. All that could be said of the familiar Yellow Wagtail appears to be included in chapters detailing distribution, migration, territory, display, breeding and systematics. A lengthy bibliography and an excellent index complete a most useful little volume.

The Redstart. By John Buxton. With 20 photographs (1 in color by Eric Hosking), 20 maps and diagrams and 2 text-figures. Pages 180 + XII. 1950. Price $2.50.

Five years as a war prisoner in Germany gave the author opportunity for amassing much of the detailed information set forth in this monograph. The subject, of course, is the British Redstart, a relative of the thrushes and not the American warbler of the same name. In the general format that presumably has been devised for the series, subjects covered include territory, nesting, migration, history and distribution, with a summary of related species. Bibliography and index again round out an excellent work.

The Fulmar. By James Fisher. An illustration in color by Peter Scott, 82 photographs (4 in color), 70 maps, drawings and diagrams. Pages 496 + XV. 1952. Price $8.00.

Unlike the preceding monographs in this series, this impressive volume presents a study of distribution and population rather than complete life-history. Certainly it will not become popular as light reading but as a source of material for future workers, it will prove invaluable. Oceanic birds in general offer many problems in breeding distribution and seldom indeed has any species been so thoroughly run down. More than 500 collaborators have aided the author with their observations, actually making the compilation possible. Mr. Fisher is to be congratulated on the successful completion of a task to which he has devoted years of work and study. — L.S.C.

ERNEST THOMPSON SETON'S AMERICA. Edited by Farida A. Wiley, with a contribution by Julia M. Seton. Illustrated by reproductions of drawings by Seton, in black and white. Pp. 413 + xxiii. The Devin-Adair Co., New York, 1954. $5.00.

Those who were privileged to know Ernest Thompson Seton will remember best the vibrant, outgoing quality of his personality. He had much to give and giving was his greatest pleasure. Gifted in the use of both pen and brush, his consuming interest in both people and animals found abundant expression. Miss Wiley's selections from Seton's voluminous works have been excellently chosen and probably each chapter represents the finest in its particular field. But many present day naturalists – shall we say of the older school? – will still thrill most pleasantly to the tales of "Lobo" and "Krag." – L.S.C.

KEEPING AND BREEDING AQUARIUM FISHES. By C. W. Emmens. 202 pp., Illus. Academic Press Inc., New York, 1953. $4.50.

It has long been obvious that a book devoted to the principles as well as the practices of home aquarium keeping was in order. Here is such a book, and by a Professor of Veterinary Physiology who is one of the leading amateur aquarists in Australia. The book lives up to high expectations in most regards, giving a comprehensive and clear account of the *hows* and *whys* of aquarium maintenance. It is, however, marred by a score or more of minor errors. These mistakes mostly concern remarks about the fishes themselves and, surprisingly enough, the diseases of fishes. It is too bad Dr. Emmens did not have some ichthyologist check his manuscript.–J.W.A.

THE LIVES OF WILD BIRDS. By Aretas A. Saunders. Illustrated by 22 drawings in black and white by Dominick D'Ostilio. Pp. 256. Doubleday & Co., Garden City, New York, 1954. $3.50.

In this small volume, Mr. Saunders provides a guide for the "bird watcher" who would like to put his observations to further use. After brief but helpful information on identifying birds in the field by color, size, shape, habit and song, he proceeds to the proper keeping of notes and the watching of migrations. Under "The Nesting Cycle" comes the real gist of the book, covering territory, courtship, behavior, plumages and kindred subjects, all fields in which the serious bird student may make observations of real value. Mr. D'Ostilio's drawings add much to the attractiveness of the book. – L.S.C.

BUILDING AN AVIARY. By Carl Naether. 44 illustrations in black and white, from photographs and line drawings. Pp. 85. All-Pets Books, Inc., Fond du Lac, Wis., 1954. $2.25.

The building of an aviary is a matter so specialized that full and detailed instructions – or suggestions – are difficult to come by. Professor Naether has covered the field thoroughly well, chiefly in the interests of the private aviculturist, and his efforts will serve a definite and useful purpose. – L.S.C.

New Members of the New York Zoological Society

(Between May 1 and June 30, 1954)

Life

Mrs. Harrison Williams

Contributing

De Lano Andrews
Mrs. Ernest Angell
Mrs. Vincent Astor
Miss Emma E. Barnsley
Crawford Blagden
H. S. M. Burns
Mrs. Robert L. Clarkson
Miss Rose Denny
Allan C. Eustis, Jr.
C. E. Goldsmith
Mrs. Thomas L. Higginson
Bernard F. Hogan
Mrs. Abraham Hyman
Maurice Newton
Mrs. Henry C. Olmsted
R. L. Parish
Perry R. Pease
Mrs. John J. Radley
Mrs. Martha Satin
Mrs. Albert E. Sawyer
Mrs. T. W. Swan
Mrs. Milton Thompson
Fernand R. Tourtois
Mrs. Harold H. Weekes

Annual

Miss Amey Owen Aldrich
Walter C. Bennett
Mrs. John F. Birch
Carl W. Buchheister
Henry Burchell
Arthur J. Cohen
Leighton Coleman
A. H. Cosden
Miss Catherine Crosbie
Miss Margaret Davidson
Dr. Peter Dineen
Mrs. Vivien Dolan
Mrs. Samuel G. Dunham
Webb Eliscu
Mrs. John C. Ellis
Miss Anita Este
Mrs. Arthur L. Fisk, Jr.
Mrs. W. A. Flagg
Mrs. Virjon Forst
Mrs. Wilson P. Foss, III
Miss Betty Frankel
Sanford H. E. Freund
Alfred L. Griffon
Irving Grodenchik
Dr. Alan F. Guttmacher
Dr. John H. Heller
Mrs. G. M. Isbrandtsen
Dr. Percy Klingenstein
Richard Klesmer
Mrs. Kenneth Kopelson
Karl Larsen
John T. Lawrence
Christopher Lloyd
Miss Violet Marsilio
Mrs. Ralph R. Miller, Jr.
Theodore G. O'Connor
Mrs. Cecilia J. Ogden
Mrs. Constance G. Papez
Mrs. Max Pruzan
Mrs. D. J. Randall
William P. Reisner, Jr.
Max Y. Seaton
Mrs. R. F. Selig
Miss Mildred B. Scales
Arnold J. Schauman
Charles Schenck
George O. Schneller
Mrs. George O. Schneller
George H. Schroder
Mrs. Charles Sheldon
Richard B. Snow
William Stoddard
Herbert Swope, Jr.
J. Duncan Tansill
Dr. Gurney Taylor
Mrs. John Norrish Thorne
R. E. Tomlinson
Mrs. Carll Tucker, Jr.
Mrs. Annemarie P. Weil
Mrs. Gerard Weinstock
Mrs. Cornelius V. Whitney
Mrs. Wallace Whittaker
Miss Dorothy Worthington